UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,580	05/10/2001	Jonathan J. Barrow	EMC01-13(01009)	5065

7590 08/05/2005	EXAMINER
David E. Huang, Esq. CHAPIN & HUANG, L.L.C. Westborough Office Park 1700 West Park Drive Westborough, MA 01581	LY, ANH VU H

ART UNIT	PAPER NUMBER
2667	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/852,580	BARROW ET AL.
	Examiner	Art Unit	
	Anh-Vu H. Ly	2667	.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 June 2005_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
      closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-25_ is/are pending in the application.

      4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _2,3,11 and 12_ is/are allowed.

6)☒ Claim(s) _1,6-8,10,15-17,19-22 and 25_ is/are rejected.

7)☒ Claim(s) _4,5,9,13,14,18,23 and 24_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

      Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

      Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

      a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
            application from the International Bureau (PCT Rule 17.2(a)).

      * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _June 06, 2005_.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This communication is in response to applicant's amendment filed June 15, 2005.

Claims 1-25 are pending.

Information Disclosure Statement

2.   The information disclosure statement filed June 06, 2005 fails to comply with 37 CFR

1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent

literature publication or that portion which caused it to be listed; and all other information or that

portion which caused it to be listed. It has been placed in the application file, but the information

referred to therein has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

3.   Claims 1, 6-8, 10, 15-17, 19-22 and 25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over the admitted prior art disclosed in the specification on pages 1-4 and Fig. 1 in

view of Barrera et al (US Patent No. 6,748,448 B1).

With respect to claims 1, 10, and 19, the admitted prior art discloses in Fig. 1 that the data

storage system 22 includes a set of network interfaces cards, front-end circuitry (processing

circuitry), a cache, back-end circuitry (processing circuitry) and a set of disk drives having

blocks for storing data. Additionally, the data storage system 22 includes a bus (the processing

circuitry of the data storage system being physically connected to the back plane of the data

storage system) that connects the front-end circuitry, the cache, and the back-end circuitry

together (a network interface card for a data storage system having a back plane and processing

circuitry for performing block-based data access operations). As illustrated in Fig. 1, the NIC

has a port for coupling to the network 26 (a first port that is capable of coupling to an external

network) and a port for connecting to the front-end circuitry (a second port that is capable of

physically connecting to the back plane of the data storage system). The admitted prior art does

not disclose a control circuitry interconnected between first port and second port being

configured to receive file-based communications from the external network through the first port

and provide block-based communications to the processing circuitry of the data storage system

through the second port and the backplane in response to the filed-based communications;

receive block-based communications from the processing circuitry through the second port and

the backplane and provide filed-based communications to the external network through the first

port in response to the block-based communications; and provide application server resources to

operate as an application server that runs application level programs. Barrera discloses (col. 8,

line 30 – col. 9, line 6 and Fig. 3) that the data storage device controller receives the URL request

from the client, using the data storage device controller protocol, data storage device controller

invokes the CGI script or a special software routine, stored on the controller, that parses and

decodes the URL request, CGI script or special software routine identifies the physical I/O

address of the resource file from the URL and passes the request directly to the data storage

device driver, using SCSI or IDE protocol for direct retrieval of I/O blocks, and the controller

returns the resource file directly to the web client using HTTP. Herein, the host server is

bypassed, therefore, it is free to run other application programs. It would have been obvious to

one having ordinary skill in the art at the time the invention was made to include the feature of

converting between file-based to block-based communications and vice versa by the interface

card in the admitted prior art's system, as suggested by Barrera, to have a faster data transfer

since the total time delay is shortened.

With respect to claims 6-7 and 15-16, the admitted prior art discloses in Fig. 1, a data

storage system for providing resources to the clients. The admitted prior art does not disclose

that the control circuitry is configured to exchange IP communications with the external network

through the first port, block-based communications with the processing circuitry of the data

storage system through the second port and the backplane of the data storage system. The

control circuitry further includes a map which maps filenames with blocks of a set of data

storage device of the data storage system, and wherein the control circuitry is configured to

receive a file-based IP data access request from the external network and to access a block of

data within the data storage system based on file-based IP data access request and the map.

Barrera discloses (col. 8, line 30 – col. 9, line 6 and Fig. 3) that the data storage device controller

receives the URL request from the client, using the data storage device controller protocol, data

storage device controller invokes the CGI script or a special software routine, stored on the

controller, that parses and decodes the URL request, CGI script or special software routine

identifies the physical I/O address of the resource file from the URL and passes the request

directly to the data storage device driver, using SCSI or IDE protocol for direct retrieval of I/O

blocks, and the controller returns the resource file directly to the web client suing HTTP. Herein, the host server is bypassed, therefore, it is free to run other application programs. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Barrera in the admitted prior art's system, to have a faster data transfer.

With respect to claims 8 and 17, the admitted prior art discloses in Fig. 1, that the NIC operates as a processor of multiprocessor system which simultaneously performs multiple application level operations.

With respect to claim 20, the admitted prior art discloses in Fig. 1, at least one network interface card for providing resources to the clients.

With respect to claims 21, 22, and 25, the admitted prior art discloses in Fig. 1, a data storage system comprising front-end circuitry 34 (a set of front-end directors), cache 36 (a cache), and back-end circuitry 38 (a set of back-end directors); wherein, the front-end circuitry 34 is located between the NIC 32 and cache 35(wherein the set of front-end directors is configured to operate as an interface between the network interface card and the cache); and wherein, the back-end circuitry 38 is located between cache 36 and storage devices 40 (wherein the set of back-end directors is configured to operate as an interface between the cache and a set of storage devices). Further, as illustrated in Fig. 1, a connection between the external network 26 and storage devices 40 comprising links, e.g., 28, 30, 44, and 48 (wherein the network

interface card, in combination with the processing circuitry, is configured to form at least a

portion of a common pathway between the external network and the set of storage devices).

Allowable Subject Matter

4.   Claims 4-5, 9, 13-14, 18, and 23-24 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

5.   Claims 2-3 and 11-12 allowed.

Response to Arguments

6.   Applicant's arguments filed June 15, 2005 have been fully considered but they are not

persuasive.

Applicant argues in page 16 that there is no reasonable expectation of success in

combining the admitted prior and Barrera. Further, applicant argues in page 17 that the NIC 32

of the AAPR system arguably would be the server 104 of Barrera, there would need to be a

connection 108 directly between the AAPR network 26 and the AAPR back-end circuitry 38.

Examiner respectfully disagrees. First of all, why there can not be a connection 108

directly between the AAPR network 26 and the AAPR front-end circuitry 34, instead of back-

end circuitry 38, as assumed by the application.

Secondly, as recited in lines 24-26 of independent claim 1, "provide application server

resources to operate as an application server that runs application-level programs"; this implies

that the function of converting between the file-based to the block-based communications now is

now being performed by the interface card instead of the server. And at last, examiner could not

understand why any connection is needed between the external network 26 and the back-end circuitry 38 as argued by the application.

To be concluded, the function of converting between file-based and block-based communications is performed by the NIC 32, instead of the server 24, as suggested by Barrera. Therefore, it is obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of the AAPR system and Barrera to have a faster data transfer since the latency associated with the server is eliminated.

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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CHI PHAM
SUPERVISORY PATENT EXAMINE